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„Adaptive subcarrier loading"

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5                                                    **Abstract:**

An adaptive loading calculation scheme and signalling scheme usable for is used  for wireless, multicarrier transmission, with minimum changes required in the current standards. The concept can be applied as an extension to the existing standard with full

10      backward compatibility. Only the bits-to-symbol mapping block (7) on the transmitter side (10) is affected (and the corresponding block on the receiver side), all other blocks maintain the same. The Adaptive Loading Calculation block (7) calculates loading tables (13), one entry for each data subcarrier. For simulations the knowledge of the current fading profile is assumed, in an actual system implementation this information

15      (9) is e.g. measured at the receiver side (11) and exchanged between the receiver and the transmitter.

The fading channel profile information (9) is used to detect the current fading condition on each sub-carrier (power). Then the sub-carriers are sorted (highest power to smallest power). The carriers with high power levels will then use a higher modulation scheme

20      as the originally selected one, whereas at the same time the small power sub-carriers will use a lower modulation scheme. The total number of used sub-carriers should not be changed (48 data sub-carrier), the total number of coded bits per OFDM symbol will also be maintained.

25      Figure 4